

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>			1. CONTRACT ID CODE		PAGE OF PAGES 1 2		
2. AMENDMENT/MODIFICATION NO. 001		3. EFFECTIVE DATE 10/14/2014		4. REQUISITION/PURCHASE REQ. NO. PR-ORD-14-02715		5. PROJECT NO. (If applicable)	
6. ISSUED BY CPOD US Environmental Protection Agency 26 West Martin Luther King Drive Mail Code: NWD Cincinnati OH 45268		7. ADMINISTERED BY (If other than Item 6) CPOD		CODE			
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) BATTELLE MEMORIAL INSTITUTE 505 KING AVE COLUMBUS OH 432012693				9A. AMENDMENT OF SOLICITATION NO.  9B. DATED (SEE ITEM 11)  10A. MODIFICATION OF CONTRACT/ORDER NO. EP-C-11-038 0017 10B. DATED (SEE ITEM 13) 02/28/2014			
CODE (b)(4)		FACILITY CODE		11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS			

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☐ is not extended.  
 Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning \_\_\_\_\_ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required) Net Increase: \$72,014.00  
 See Schedule

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority)
X	Limitation of Funds Notice

E. IMPORTANT: Contractor ☒ is not. ☐ is required to sign this document and return \_\_\_\_\_ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

Tax ID Number (b)(4)

DUNS Number:

The purpose of this modification is to add funding to fully fund the Task Order.

TOPO: Joseph Wood

LIST OF CHANGES:

Reason for Modification : Funding Only Action

Obligated Amount for this Modification: \$72,014.00

Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Camille W. Davis	
15B. CONTRACTOR/OFFEROR  (Signature of person authorized to sign)	15C. DATE SIGNED	11 Camille W. Davis	16C. DATE SIGNED 10/14/2014

<b>CONTINUATION SHEET</b>	REFERENCE NO. OF DOCUMENT BEING CONTINUED EP-C-11-038/0017/001	PAGE 2 OF 2
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NAME OF OFFEROR OR CONTRACTOR  
BATTELLE MEMORIAL INSTITUTE

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	<p>Incremental Funded Amount changed From: \$250,000.00 To: \$322,014.00</p> <p>NEW ACCOUNTING CODE ADDED: Account code: 14-15-C-264B000-401F72-2532-26A6A-14264BE067-001 Beginning Fiscal Year 14 Ending Fiscal Year 15 Fund (Appropriation) C Budget Organization 264B000 Program (PRC) 401F72 Budget (BOC) 2532 Job # (Site/Project) Cost Organization 26A6A DCN-LineID 14264BE067-001 Quantity: 0 Amount: \$72,014.00</p> <p>Cost: \$(b)(4) Fee: \$ Total: \$72,014.00 Delivery Location Code: ORD NHSRC DCMD US Environmental Protection Agency US EPA 4930 Old Page Road Room #: E311G Durham NC 27703 USA</p> <p>Payment: RTP Finance Center US Environmental Protection Agency RTP-Finance Center (D143-02) 109 TW Alexander Drive Durham NC 27711 FOB: Destination Period of Performance: 03/03/2014 to 03/03/2015</p>				

# ORDER FOR SUPPLIES OR SERVICES

PAGE OF PAGES

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IMPORTANT: Mark all packages and papers with contract and/or order numbers.

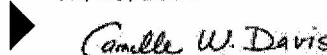
1. DATE OF ORDER 02/28/2014		2. CONTRACT NO. (If any) EP-C-11-038		6. SHIP TO: a. NAME OF CONSIGNEE US Environmental Protection Agency	
3. ORDER NO. 0017		4. REQUISITION/REFERENCE NO. PR-ORD-14-00246			
5. ISSUING OFFICE (Address correspondence to) CPOD US Environmental Protection Agency 26 West Martin Luther King Drive Mail Code: NWD Cincinnati OH 45268				b. STREET ADDRESS US EPA 4930 Old Page Road Room #: E311G	
				c. CITY Durham	d. STATE NC
				e. ZIP CODE 27703	
7. TO: a. NAME OF CONTRACTOR BATTELLE MEMORIAL INSTITUTE				f. SHIP VIA	
b. COMPANY NAME				8. TYPE OF ORDER <input type="checkbox"/> a. PURCHASE <input checked="" type="checkbox"/> b. DELIVERY	
c. STREET ADDRESS 505 KING AVE				REFERENCE YOUR:  Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.	
d. CITY COLUMBUS		e. STATE OH	f. ZIP CODE 432012693		

9. ACCOUNTING AND APPROPRIATION DATA See Schedule				10. REQUISITIONING OFFICE CPOD	
11. BUSINESS CLASSIFICATION (Check appropriate box(es)) <input type="checkbox"/> a. SMALL <input checked="" type="checkbox"/> b. OTHER THAN SMALL <input type="checkbox"/> c. DISADVANTAGED <input type="checkbox"/> d. WOMEN-OWNED <input type="checkbox"/> e. HUBZone <input type="checkbox"/> f. SERVICE-DISABLED VETERAN-OWNED <input type="checkbox"/> g. WOMEN-OWNED SMALL BUSINESS (WOSB) ELIGIBLE UNDER THE WOSB PROGRAM <input type="checkbox"/> h. EDWOSB					12. F.O.B. POINT Destination
13. PLACE OF a. INSPECTION Destination		b. ACCEPTANCE Destination		14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date) Multiple
				16. DISCOUNT TERMS	

## 17. SCHEDULE (See reverse for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	Tax ID Number: (b)(4) DUNS Number: Neutralization of Ricin Toxicity using Elevated Temperature and Humidity TOPO: Joseph Wood  Continued ...					

18. SHIPPING POINT		19. GROSS SHIPPING WEIGHT		20. INVOICE NO.		17(h) TOTAL (Cont. pages)	
21. MAIL INVOICE TO: a. NAME RTP Finance Center b. STREET ADDRESS (or P.O. Box) US Environmental Protection Agency RTP-Finance Center Mail Drop D143-02 109 TW Alexander Drive c. CITY Durham d. STATE NC e. ZIP CODE 27711							
SEE BILLING INSTRUCTIONS ON REVERSE						\$250,000.00	17(i) GRAND TOTAL
						\$322,014.00	

22. UNITED STATES OF AMERICA BY (Signature) 		02/28/2014		23. NAME (Typed) Camille W. Davis TITLE: CONTRACTING/ORDERING OFFICER	
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ELECTRONIC SIGNATURE



**ORDER FOR SUPPLIES OR SERVICES**  
**SCHEDULE - CONTINUATION**

PAGE NO

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IMPORTANT: Mark all packages and papers with contract and/or order numbers.

DATE OF ORDER

CONTRACT NO.

ORDER NO.

02/28/2014

EP-C-11-038

0017

ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
0001	<p>Admin Office: CPOD US Environmental Protection Agency 26 West Martin Luther King Drive Mail Code: NWD Cincinnati OH 45268 Period of Performance: 03/03/2014 to 03/03/2015</p> <p>NEUTRALIZATION OF RICIN TOXICITY USING ELEVATED TEMPERATURE AND HUMIDITY</p> <p>Delivery: 11/18/2013 Accounting Info: 13-14-C-264B000-401F72XPC-2532-26A6A-1 4264BE005-001 BFY: 13 EFY: 14 Fund: C Budget Org: 264B000 Program (PRC): 401F72XPC Budget (BOC): 2532 Cost: 26A6A DCN - Line ID: 14264BE005-001 Funding Flag: Complete Funded: \$0.00</p>				0.00	
0002	<p>Neutralization of Ricin Toxicity using elevated Temperature and Humidity Award Type: Cost-plus-fixed-fee Total Estimated Cost: \$(b)(4) Fixed Fee: \$(b)(4) Completion Form</p> <p>Accounting Info: 13-14-C3-264B000-401F72-2532-HQ00BG00-26A6A-14264BE005-002 BFY: 13 EFY: 14 Fund: C3 Budget Org: 264B000 Program (PRC): 401F72 Budget (BOC): 2532 Job #: HQ00BG00 Cost: 26A6A DCN - Line ID: 14264BE005-002 Funding Flag: Complete Funded: \$250,000.00</p> <p>The obligated amount of award: \$250,000.00. The total for this award is shown in box 17(i).</p>				250,000.00	

TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17(H))

\$250,000.00

AUTHORIZED FOR LOCAL REPRODUCTION  
PREVIOUS EDITION NOT USABLE

OPTIONAL FORM 348 (Rev. 4/2006)

Prescribed by GSA FAR (48 CFR) 53.213(f)

**PERFORMANCE WORK STATEMENT**  
**STREAMS II**  
**Task Order 0017, Battelle EP-C-11-038**

**TITLE:** NEUTRALIZATION OF RICIN TOXICITY USING ELEVATED TEMPERATURE AND HUMIDITY

<b>Task Order Contracting Officer Rep</b> Name: Joseph Wood Office: ORD/NHSRC Decontamination and Consequence Management Div., Research Triangle Park, NC 27711 Phone: (919) 541-5029 Fax: (919) 541-0496 Email: <a href="mailto:Wood.Joe@epa.gov">Wood.Joe@epa.gov</a>	<b>Alternate Task Order COR</b> Name: Shannon Serre Office: ORD/NHSRC Decontamination and Consequence Management Div., Research Triangle Park, NC 27711 Phone: (919) 541-3817 Fax: (919) 541-0496 Email: <a href="mailto:Serre.Shannon@epa.gov">Serre.Shannon@epa.gov</a>
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**PERIOD OF PERFORMANCE:** March 3, 2014 through March 3, 2015.

The period of performance may be extended for an additional 12 months pending availability of funding.

**SUMMARY OF OBJECTIVES**

This work shall provide data on how long ricin remains toxic on different materials under different environmental conditions. Specifically, tests shall be conducted to assess persistence of ricin toxicity as a function of different combinations of temperature and relative humidity.

**RELEVANCE**

The results of these tests will provide information about how long ricin may remain toxic when exposed to different (e.g., either elevated or lowered) temperatures and RH levels. This information will be useful in determining the conditions in which decontamination may or may not be necessary.

**BACKGROUND**

The U.S. Environmental Protection Agency (EPA) has the responsibility for protecting human health and the environment from accidental and intentional releases of hazardous and toxic materials. According to Homeland Security Presidential Directive 10 (HSPD-10), the EPA is tasked with developing strategies, guidelines, and plans for decontamination of persons, equipment, and facilities following a biological weapons attack. In response to this directive, the EPA Office of Research and Development (ORD) National Homeland Security Research Center's (NHSRC) Decontamination and Consequence Management Division (DCMD) is conducting persistence studies of ricin and other biological agents on materials/surfaces. This work will utilize methods from previous persistence and decontamination studies that have already been conducted by DCMD.

## SCOPE

The purpose of the study is to quantify the recovery of ricin from six (6) materials at different elapsed time points when exposed to different combinations of temperature and RH. It is also anticipated that ricin will be tested in both crude and refined forms. The six materials that will be used for testing have not been selected at the writing of this Task Order, but may include both indoor and outdoor types of materials. These materials will be selected in consultation with the TOCOR during the writing of the Quality Assurance Project Plan (QAPP). Fifteen separate tests (15 test durations) shall be conducted. Sufficient replicates, blanks, and positive controls shall be used, consistent with previous EPA and other peer reviewed ricin studies and quality assurance procedures.

Conference calls shall be established on an *ad hoc* basis between the EPA TOCOR and the contractor. During these conference calls the contractor shall report on progress made in the project and any technical issues encountered in implementation of the test plan.

## TECHNICAL APPROACH

For each test, the effort shall include the recovery of ricin from each material before (positive control) and after each test duration has been completed. Five (5) replicates for each agent-material-time point combination and five (5) replicates for each agent material positive control shall be included in each experiment.

## TASKS

### TASK 1: DRAFT A QUALITY ASSURANCE PROJECT PLAN

The contractor shall draft a Quality Assurance Project Plan (QAPP) that shall cover the work outlined in this performance work statement (PWS) including a project timeline. This QAPP shall follow guidelines set forth in Attachment #1 to the PWS. In this plan, the test matrices must include laboratory blanks, positive controls, and procedural blanks in addition to the test coupons. The QAPP shall be submitted to the EPA TOCOR within 30 days after Task Order (T.O.) award, and then revised per TOCOR and the EPA QA Manager comments. No tests shall be conducted until the QAPP has been approved by the EPA QA manager. (All approvals will come over email.) Approval time is usually 2-3 weeks.

All methods, materials, procedures, equipment, ricin preparations and analyses, etc., conducted under this task order, shall be consistent with those used in previous related studies directed by EPA researchers or as documented in peer reviewed journal articles. Examples of two EPA references are EPA 600/R-10/097, Novel Cell-Based Assay for Testing Active Holo-Ricin and Its Application in Detection Following Decontamination; and EPA/600/R-08/002, Impact of Temperature and Humidity on the Persistence on Ricin Toxin and Vaccinia Virus on Indoor Surfaces.

The awardee shall comply with all requirements as delineated on the "Quality Assurance Planning Requirements Form (QARF)" included with this extramural action; see Attachments #1 and #2. The contractor shall prepare a QAPP in accordance with <http://www.epa.gov/quality/qs-docs/r5-final.pdf>. For guidance on preparing a research-specific QAPP, the preparer should refer to the project specific requirements provided in NHSRC's QMP. The QAPP shall be approved prior to the start of any laboratory work. Additional information related to QA requirements can be found at [www.epa.gov/quality](http://www.epa.gov/quality).

## **TASK 2:      PERFORM PERSISTENCE TESTS**

The contractor shall conduct experiments to determine the recovery of ricin (using both crude and refined forms) on six (6) materials at 15 non-zero time points (i.e., 15 separate tests). These tests shall be conducted at different combinations of temperature and RH. It is expected that the majority of tests shall be conducted at elevated temperatures (up to 100 degrees F) and RH levels (up to 100 % RH), although a few tests shall be conducted to assess the effect of low temperature (e.g., 30-40 degrees F) and RH (e.g., 20-30%) as well.

Initial test durations and environmental conditions shall be selected in consultation with the TOCOR during the writing of the QAPP, and follow on test durations shall be selected based on results of ongoing tests. *Contractors shall base their cost proposal for each test on the expectation that the longest duration tested may be one (1) week (at the low temperature condition).*

Five (5) replicate agent-material test coupons and five (5) replicate agent-material positive controls shall be included in each experiment, with a sufficient number of blanks.

Neutralization of ricin toxicity over time shall be determined quantitatively based on the recovery of the agent from the tested coupons and on the positive controls, as described in more detail in the QAPP. The results shall be reported in terms of each time point as well as each environmental condition.

Task 2 Deliverable: Transfer of project data (including raw data) shall occur at the conclusion of each experiment within each task. The data sheets shall also include the experimental conditions (e.g. temperature and relative humidity), the measured agent levels on all of the coupons (test coupons, procedural blanks, positive controls, and laboratory blanks), etc. The subsequent experiments shall not begin until the EPA TOCOR has reviewed and approved the data (1-2 days from receipt of data) from the current task.

## **TASK 3:      REPORT**

The contractor shall prepare three (3) drafts of the report.

Task 3 Deliverable #1: The first draft of the report shall be received by the TOCOR no later than three (3) weeks after completion of the final test. The EPA TOCOR will provide comments on the first draft within two (2) weeks after receipt.

Task 3 Deliverable #2: The contractor shall revise the report based on the TOCOR comments within one (1) week of receiving the TOCOR comments. The TOCOR will send the second draft of the report for peer and QA review (which may take three (3) weeks), and then submit the peer and QA comments to the contractor.

Task 3 Deliverable #3: The contractor shall revise the report (prepare the third draft) based on the comments from the peer and QA reviewers, and in consultation with the TOCOR, no later than the final date of this T.O.

Task 3 Deliverable #4: Transfer of project data (including raw data) shall occur at the conclusion of each experiment within each task. The data sheets shall also include the experimental conditions (e.g. temperature and relative humidity), the measured agent levels on all of the coupons (test coupons, procedural blanks, positive controls, and laboratory blanks), etc. The subsequent experiments shall not begin until the EPA TOCOR has reviewed and approved the data (1-2 days from receipt of data) from the current task.

Task 3 Deliverable #5: A document describing any deviations from the QA plan shall also be provided along with the final report.

## REPORTING REQUIREMENTS

1. Laboratory data shall be transferred electronically to the EPA TOCOR after the conclusion of each trial or series of tests. All products developed under this PWS (e.g., the above mentioned technical report) must conform to the requirements of EPA/NHSRC's guide to writing research reports found at the following website:  
[http://www.epa.gov/nhsrc/pubs/FINAL\\_PDF\\_Policy\\_and\\_Guidance.pdf](http://www.epa.gov/nhsrc/pubs/FINAL_PDF_Policy_and_Guidance.pdf)
2. Prior to submission of the final data package, all of the data shall be given to the EPA TOCOR in electronic format (specifically Microsoft Excel spreadsheets). The data on these spreadsheets shall be straightforward and explanation of the results via comments shall be added if they are not straightforward.
3. Copies of internal audit reports and responses shall be sent to the EPA TOCOR in a timely fashion. The TOCOR and EPA Quality Assurance Manager shall be immediately notified of any critical findings.
4. The contractor shall document all data analysis including statistical models and related assumptions.



**QUALITY ASSURANCE SURVEILLANCE PLAN (QASP)  
STREAMS II**

**Task Order 0017, Battelle EP-C-11-038**

**TITLE:** NEUTRALIZATION OF RICIN TOXICITY USING ELEVATED TEMPERATURE AND HUMIDITY

**TASK ORDER MANAGER** – Joseph Wood

Performance Objective (Task)	Performance Standard (PS)	Surveillance Plan (SP)	Contractor Incentive (CI)	✓ or X
<b>Task 1:</b> Draft a Quality Assurance Project Plan	Contractor drafts a quality assurance plan and revises as directed by TOCOR and EPA's Quality Assurance (QA) Manager.	TOCOR and the EPA QA Manager will review the quality assurance plan.	TOCOR will address compliance in PPE	X
<b>Task 2:</b> Perform Persistence Tests	Contractor conducts all tests outlined in the PWS and QAPP. Data are delivered to TOCOR (for example, raw data, agent recoveries, data quality indicators, temperature and relative humidity levels) periodically as indicated in PWS.	TOCOR will document whether receipt of data delivery is complete and timely.	TOCOR will address compliance in PPE	X
<b>Task 3:</b> Report	Contractor completes three (3) drafts of the report. Contractor addresses TOCOR, QA and peer review comments, as outlined in PWS.	TOCOR will provide comments on final report and document that the contractor has addressed all the TOCOR, QA and peer review comments.	TOCOR will address compliance in PPE	x